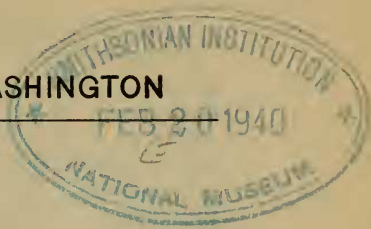


PROCEEDINGS  
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FOUR NEW MAMMALS FROM UTAH.

BY E. A. GOLDMAN.

As the waters of ancient Lake Bonneville receded to the still sizable remnant, Great Salt Lake, Utah, several land areas emerged as islands of varying size. Some of these have become inhabited by small mammals obviously derived from the adjacent mainland. During the past summer specimens of the kangaroo rat, *Dipodomys microps*, and of the white-footed mouse, *Peromyscus maniculatus*, were obtained on Gunnison Island by Alfred M. Bailey, Director, and Robert J. Niedrach of the Colorado Museum of Natural History. Gunnison Island, in the northwestern part of the lake, is perhaps two miles long, and rises several hundred feet in elevation above the water level. It is described as rocky in character.

The specimens represent well-marked insular races, which, owing to the courtesy and cooperation of Mr. Bailey, I am privileged to describe as new. Contributions to our knowledge of natural history by Mr. Bailey have covered a wide field and it seems fitting that the kangaroo rat should bear his name. Another form of *D. microps* is described from near the mainland shore of Great Salt Lake.

Bird Island, Great Salt Lake, is occupied by a new form of *Dipodomys ordii*, recently collected by W. H. Marshall of the Biological Survey.

*Dipodomys microps alfredi*, subsp. nov.

GUNNISON ISLAND KANGAROO RAT.

*Type*.—From Gunnison Island, Great Salt Lake, Utah (altitude about 4,300 feet). No. 262846, ♀ adult, U. S. National Museum (Biological Survey collection), collected by Alfred M. Bailey and Robert J. Niedrach, June 1, 1937. Original number 2994.

*Distribution*.—Known only from Gunnison Island.

*General characters*.—Size largest and color palest of the known geographic races of *Dipodomys microps*. Most closely approaching *D. m. celsus* of northwestern Arizona in size, but skull distinctly larger, more angular and massive, and color paler, the upper and lower longitudinal tail stripes in adults coarsely grizzled, instead of nearly uniform brown or brownish black.

*Color*.—*Type*: Upper parts in general near "pinkish buff" (Ridgway, 1912), purest on sides of head, flanks, and thighs, the top of head and back thinly but more distinctly mixed with black; under parts, postauricular and supraorbital spots, fore limbs, hind feet above, hip stripes and tail at extreme base all around pure white; tail beyond base brown mixed with gray above and below, becoming brownish in a subterminal zone all around, the white under color showing through strongly near tip, the sides white along the usual lines narrowing to the subterminal area mentioned; soles of hind feet blackish to base of toes which are white; ears white externally, except anterior fold which is black, thinly clothed with minute black hairs internally; cheek pouches lined with dusky hairs anteriorly.

*Skull*.—Most closely resembling that of *D. m. celsus*, but more massive; maxillary arches more extended anterior-posteriorly, the external angles well developed; jugal heavier; rostrum broader; incisors decidedly broader.

*Measurements*.—*Type*: Total length, 286 mm.; tail vertebrae, 170; hind foot, 44. Five adult topotypes: 284 (270–299); 162 (150–175); 46 (44–48).

*Skull* (type): Greatest length (on median line), 37; greatest breadth (between outer sides of auditory bullae), 25; breadth across maxillary arches, 20.8; length of nasals, 13.5; width of nasals (in front of incisors), 3.9; least width of supraoccipital (near interparietal), 1.8; maxillary tooth row (alveoli), 4.4; width of cutting edge of upper incisors, 2.8.

*Remarks*.—*D. m. alfredi* exhibits differential color, general size and cranial details, suggesting isolation for a lengthy period. It might be treated as a distinct species, but subspecific designation seems in this case a better expression of relationship.

*Specimens examined*.—Fifteen, all from the type locality.

### ***Dipodomys microps bonnevilliei*, subsp. nov.**

LAKE BONNEVILLE BASIN KANGAROO RAT.

*Type*.—From Kelton, Boxelder County, Utah (altitude about 4,300 feet). No. 31894/43755, ♀ adult, U. S. National Museum (Biological Survey collection), collected by Vernon Bailey, November 7, 1891. Original number 3490.

*Distribution*.—Specimens examined only from the type locality, but the subspecies probably ranges widely in the basin of former Lake Bonneville.

*General characters*.—Closely allied to *Dipodomys microps levipes* of Panamint Mountains, California; size and color nearly identical, but cranial and dental details, especially the broader upper incisors distinctive. Similar in size to *Dipodomys microps preblei* of southeastern Oregon, but color paler and skull different. Paler also than either *Dipodomys microps celsus* or *Dipodomys microps leucotis* of northern Arizona. Somewhat

darker and contrasting in smaller size with its neighbor, *Dipodomys microps alfredi* of Gunnison Island, Great Salt Lake, Utah.

*Color.*—*Type* (winter pelage): Upper parts near "pinkish buff" (Ridgway, 1912), purest on sides of head, flanks, and thighs, the top of head and back moderately and more distinctly mixed with black; under parts, postauricular and supraorbital spots, fore limbs, hind feet above, hip stripes and tail at extreme base all around pure white; tail beyond base brownish above and below, the sides becoming white abruptly along lines narrowing gradually toward tip; soles of hind feet blackish to base of toes which are white; ears white externally, except anterior fold which is black, thinly clothed with short, deep black hairs internally; cheek pouches lined with black anteriorly, the black showing along external margins.

*Skull.*—Very similar to that of *D. m. levipes*, but usually shorter and relatively broader; maxillary arches less extended antero-posteriorly, the outer angles more rounded and less hook-like; incisors broader. Similar in size to those of *D. m. preblei* and *D. m. leucotis*, but maxillary arches with more rounded posterior edges, the outer angles less prominent; mastoid and auditory bullae larger, more inflated; supraoccipital and interparietal narrower, more compressed between mastoid bullae. Differing from that of *D. m. celsus* in decidedly smaller general size in combination with relatively broader incisors. Compared with that of *D. m. alfredi* the skull is much smaller and of lighter proportions, the maxillary arches notably weakly developed with scarcely a trace of the external angles that are prominent in *alfredi*.

*Measurements.*—*Type*: Total length, 260 mm.; tail vertebrae, 156; hind foot, 41. Two adult female topotypes: 287, 271; 173, 165; 42.5, 39. *Skull* (type): Greatest length (on median line), 34.8; greatest breadth (between outer sides of auditory bullae), 23.8; breadth across maxillary arches, 19; length of nasals, 11.8; width of nasals (in front of incisors) 3.9; least width of supraoccipital near interparietal, 1.4; maxillary tooth row, 4.5; width of cutting edge of upper incisors, 2.5.

*Remarks.*—*D. m. bonnevilliei* more closely resembles *D. m. levipes* than its nearer insular neighbor *D. m. alfredi*.

*Specimens examined.*—Five, all from the type locality.

#### ***Dipodomys ordii marshalli*, subsp. nov.**

##### BIRD ISLAND KANGAROO RAT.

*Type.*—From Bird Island, Great Salt Lake, Utah (altitude about 4,300 feet). No 262655, ♀ adult, U. S. National Museum (Biological Survey collection), collected by W. H. Marshall, June 22, 1937. X-catalog number 27969.

*Distribution.*—Known only from Bird Island.

*General characters.*—Allied to *Dipodomys ordii utahensis* of the adjacent mainland, but smaller and color paler; ground color of upper parts "pinkish buff" instead of "cinnamon buff" (Ridgway, 1912); orbital areas more extensively white; black facial markings less distinct; ears less dusky.

*Color.*—*Type*: Upper parts in general near "pinkish buff," thinly and

nearly uniformly mixed with black; entire under parts, postauricular and orbital areas, fore limbs, hind feet above, hip stripes and tail at extreme base all around pure white; tail beyond base light brown mixed with gray above and below, becoming brownish all around at tip; sides of tail white as usual in the group; soles of hind feet tinged with brown to base of toes which are white; ears white externally, except anterior fold which like the inner surface is thinly and inconspicuously covered with dusky hairs.

*Skull*.—Closely resembling that of *D. o. utahensis*, but smaller; dentition very light.

*Measurements*.—*Type*: Total length, 237 mm.; tail vertebrae, 123; hind foot, 36. An adult male topotype: 237; 127; 40. *Skull* (type): Greatest length (median line), 35; greatest breadth (between outer sides of auditory bullae), 22.8; breadth across maxillary arches, 20; length of nasals, 13.7; width of nasals (in front of incisors), 3.4; least width of supraoccipital (near interparietal), 2.6; maxillary tooth row (alveoli), 4.1; width of cutting edge of upper incisors, 1.7.

*Remarks*.—This rather well-marked new subspecies is named for the collector, W. H. Marshall. Like *Dipodomys microps alfredi* of Gunnison Island it is distinguished from the mainland representative of the species by its pallor. In the topotypes the upper parts are purer buff (fewer dark-tipped hairs present) than in the type.

*Specimens examined*.—Four, all from the type locality.

#### ***Peromyscus maniculatus gunnisoni*, subsp. nov.**

GUNNISON ISLAND WHITE-FOOTED MOUSE.

*Type*.—From Gunnison Island, Great Salt Lake, Utah (altitude about 4,300 feet). No. 262845, ♀ adult, U. S. National Museum (Biological Survey collection), collected by Alfred M. Bailey and Robert J. Niedrach, June 1, 1937. Original number 3010.

*Distribution*.—Known only from Gunnison Island.

*General characters*.—A pinkish buffy subspecies of similar proportions and most closely allied to *Peromyscus maniculatus sonoriensis* of Sonora, but decidedly paler; buffy element in upper parts lighter in tone and dorsum less obscured by dusky hairs; ears more distinctly clothed internally and edged with silvery white; tail lighter brown above; skull about the same. Very similar in color to *Peromyscus maniculatus nebrascensis* of Montana, and *Peromyscus maniculatus luteus* of Nebraska but larger than either, the disparity in size well shown in larger ears and longer tail.

*Color*.—*Type* (summer pelage): Upper parts "pinkish buff" (Ridgway, 1912), nearly pure along sides, the top of head and back thinly overlaid with dusky hairs; under parts, forearms and feet white; ears dusky, thinly lined internally and distinctly edged with minute silvery white hairs, white spots at anterior base of ears showing through; tail sharply bicolor, light brown along narrow line above, white on sides and below. *Young* (about two-thirds grown): Upper parts much duller and grayer, lacking the vivid buffy tone of adults.

*Skull*.—About as in *P. m. sonoriensis*.

*Measurements.*—*Type*: Total length, 168 mm.; tail vertebrae, 72; hind foot, 20.5. Average of eight adult topotypes: 155 (148–178); 68 (63–72); 20 (19–22). *Skull* (type): Greatest length, 25.2; condylobasal length, 23.3; zygomatic breadth, 12.8; interorbital constriction, 4; length of nasals, 9.2; length of incisive foramina, 5.2; length of palatal bridge, 3.6; interparietal, 9.4 x 2.2; maxillary tooth row, 3.6.

*Remarks.*—*P. m. gunnisoni* approaches *P. m. nebrascensis* and *P. m. luteus* in vivid coloration, but in general size and proportions shows alliance to *P. m. sonoriensis* as represented on the adjacent mainland. All of the adults appear to be in the "buff phase."

*Specimens examined.*—Sixteen, all from the type locality.